

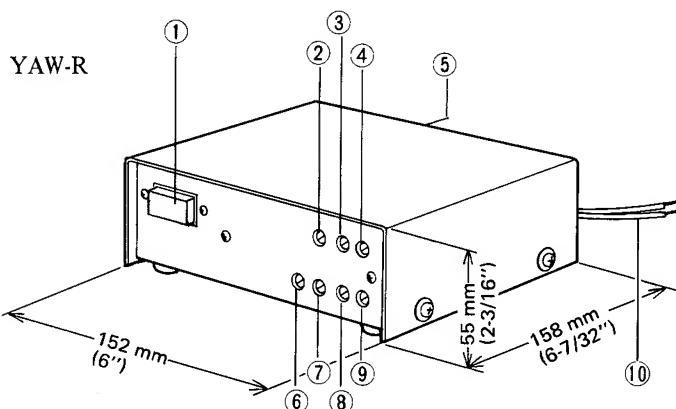
# PAGING ADAPTOR

**MODELS:** YAW-R (1-zone paging adaptor)

**YAW-RA** (8-zone paging adaptor)

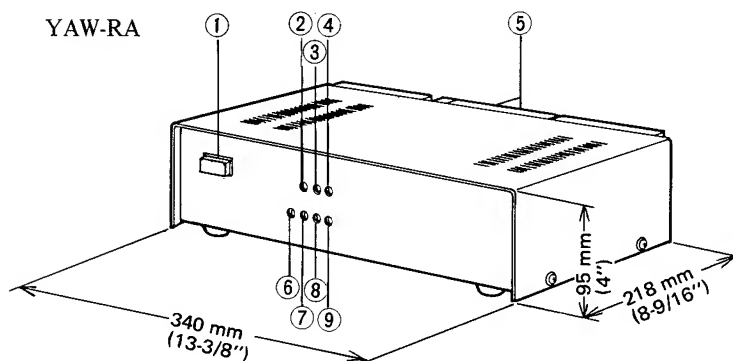
YAW-R AND YAW-RA ARE ZONE PAGING ADAPTORS FOR YAZ-90-3 PHONE TYPE INTERCOM SYSTEM.

## — INSTRUCTIONS —



### NAMES AND FUNCTIONS

- ① Socket for setting adaptor number
- ② Volume control for background music
- ③ Bass control for background music
- ④ Treble control for background music
- ⑤ Terminal section
- ⑥ Pre-tone volume control
- ⑦ Volume control for paging
- ⑧ Bass control for paging
- ⑨ Treble control for paging
- ⑩ Leads for controlling amplifier power



### FEATURES

- \* YAZ-90-3 system may install up to 10 adaptors for paging and/or remote operation, as well as 90 phone stations.
- \* YAW-RA may connect up to 8 zones of speakers, with or without talkback.
- \* All Page, Multiple Zone Page & Single Zone Page (in YAW-RA only).
- \* Talkback paging, adding a PB-YKX adaptor for each zone.
- \* Accepts background music.
- \* Paging amplifier power control (turns on only when paging is made).

## SPECIFICATIONS

### YAW-R

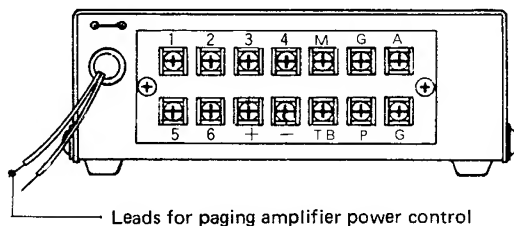
- \* Power source Extend DC 24V from your YAZ system.
- \* Current consumption Less than 40mA in standby mode.  
Less than 150mA in paging mode.  
Less than 200mA in talkback mode.
- \* BGM input impedance/level 20K ohm/300mV (RMS), 1KHz.
- \* BGM output impedance/level 600 ohm/150mV (RMS), 1KHz.
- \* Paging input impedance/level 600 ohm/78mV (RMS), 1KHz.
- \* Paging output impedance/level 600 ohm/300mV (RMS), 1KHz.
- \* Permitted line resistance 20 ohm Loop for power supply line  
200 ohm Loop for communication line
- \* Contact capacity for paging amplifier control AC 240V, 10A. DC 24V, 10A

### YAW-RA

- \* Power source Extend DC 24V from your YAZ system.
- \* Current consumption 40mA in standby mode.  
Maximum 400mA in paging mode.  
Maximum 700mA in talkback mode.
- \* BGM input impedance/level 20K ohm/300mV (RMS), 1KHz.
- \* BGM output impedance/level 600 ohm/150mV (RMS), 1KHz.
- \* Paging input impedance/level 600 ohm/78mV (RMS), 1KHz.
- \* Paging output impedance/level 600 ohm/300mV (RMS), 1KHz.
- \* Permitted line resistance 5 ohm Loop for power supply line  
200 ohm Loop for communication line
- \* Contact capacity for paging amplifier control AC 25V, 10A

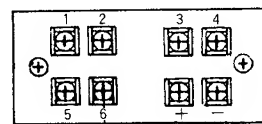
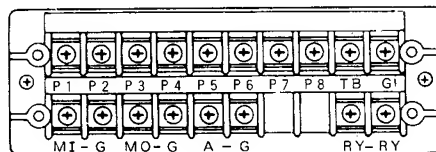
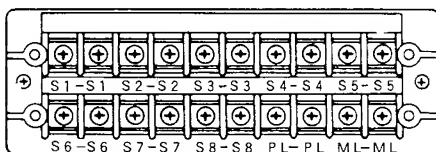
## ACTUAL TERMINAL LOCATION

### [YAW-R]



- 1 2 Terminals for paging voice and control signal (for communication channel #1)
- 3 4 Terminals for paging voice and control signal (for communication channel #2)
- 5 6 Terminals for paging voice and control signal (for communication channel #3)
- + - Terminals for power supply
- M G Terminals for BGM signal input
- A G Terminals for paging and BGM output signals
- P G Terminals for talkback adaptor control signal
- TB Terminals for talkback voice signal input

### [YAW-RA]

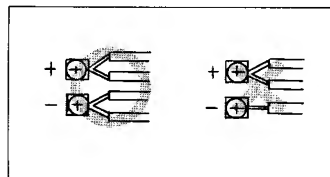


- 1 2 Terminals for paging voice and control signal (for communication channel #1)
- 3 4 Terminals for paging voice and control signal (for communication channel #2)
- 5 6 Terminals for paging voice and control signal (for communication channel #3)
- + - Terminals for power supply
- P1 ~ P8 Terminals for talkback adaptor control signal
- TB G Terminals for talkback voice signal input
- MI G Terminals for BGM signal input
- MO G Terminals for BGM signal output
- A G Terminals for paging output
- RY RY Terminals for paging amplifier power control
- S1 ~ S8 Terminals for connecting speakers (for 8 zones)
- PL PL Terminals for paging constant voltage signal input
- ML ML Terminals for BGM constant voltage signal input

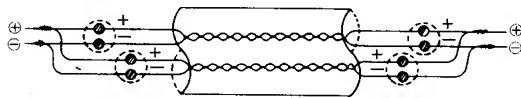
## PRE-INSTALLATION INSTRUCTIONS

Wiring on terminals 1 2 3 4 5 6 + -

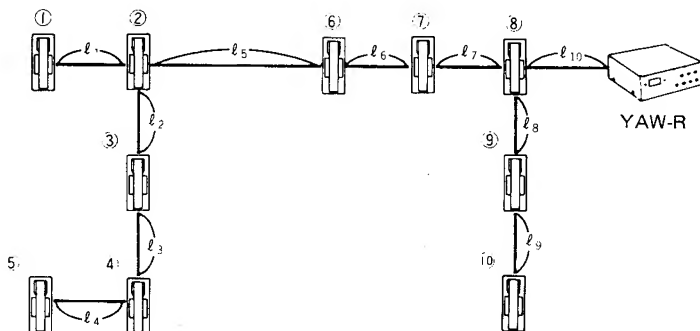
- ① YAW-R & YAW-RA adaptors employ electronic components, such as CPU (microprocessor) and IC chips.  
Please use twisted-pair cable in order to prevent the unit from being interfered by line inductive noises generated by the surrounding electrical appliances and from crosstalk and mulfunction caused by the cable conductors themselves.
- ② Connect first twisted pair to terminals 1 2, second twisted pair to terminals 3 4, third twisted pair to terminals 5 6. **DO NOT CROSS WIRES.**
- ③ Power supply lines must be wired symmetrically so that electrical resistance of + and - lines would be equal, otherwise crosstalk or mulfunction may take place.



- ④ Do not connect two twisted pairs or more for each communication line.  
For power supply line, please connect two twisted pairs as shown below, if required.



- ⑤ When running cable along with or crossed with AC power line and/or weak currency line (paging, signal transmitting lines), please keep the cable at least 30cm (1') away from those lines or run the cable through the metal conduit.
- ⑥ The total wiring distance should not exceed 2.9 km (1.8 mile) with 0.8 mm dia. (20AWG) cable. ( $\ell_1 + \ell_2 + \ell_3 + \dots + \ell_9 + \ell_{10}$  in the below illustration)



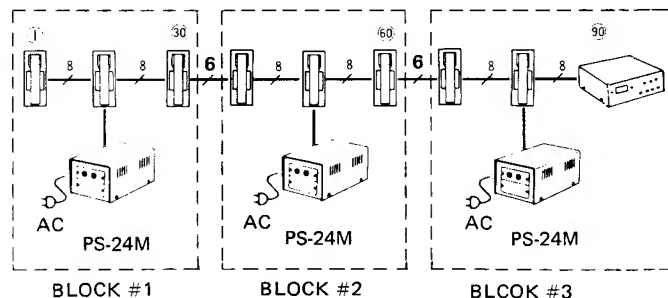
Diameter of wires	0.5 mm	0.65 mm	0.8 mm
Distance	1,100 m	1,900 m	2,900 m
AWG	24AWG	22AWG	20AWG
Distance	0.7 mile	1.2 mile	1.8 mile

Note: The line loop resistance should not exceed 200 ohm for communication line between YAW-R/RA adaptor and the remotest phone (station ⑤).

## PRE-INSTALLATION INSTRUCTIONS (continued)

- ⑦ Power supply adaptor should be installed per every 30 YAZ-90-3 stations.

When system includes paging and/or talkback adaptors, these adaptors should be counted as mentioned below, in view of the bigger current consumption of the adaptors.



Notes:

- When power supply is installed in each block: #1, 2 & 3 as shown in the left illustration, do not connect  $\boxed{+}$ ,  $\boxed{-}$  terminals between each block.
- The loop resistance of power supply line between PS-24M power supply and the remotest phone (or adaptor) in each block, should be less than 20 ohm.

No. of YAZ-90-3 used	Power supply required	Location of Power supply
Up to 30 stations	1 pce	Install PS-24M power supply in the center of each block (30 stations)
From 31 to 60 stations	2 pcs	
From 61 to 90 stations	3 pcs	

When deciding number of power supplies necessary for an entire system, please add the station number for each paging or talkback adaptor.

- \* 5 units YAZ-90-3 for one YAW-R, 1-zone paging adaptor.
- \* 10 units YAX-90-3 for one YAW-RA, 8-zone paging adaptor.
- \* 1 unit YAZ-90-3 for one PB-YKX, talkback adaptor.

Wiring on terminals  $\boxed{M}$   $\boxed{G}$   $\boxed{A}$  (on YAW-R)  $\boxed{MI}$   $\boxed{G}$   $\boxed{MO}$   $\boxed{G}$   $\boxed{A}$   $\boxed{G}$  (on YAW-RA) to BGM source output/paging or BGM amplifier input

Use shielded wires and locate YAW-R/RA adaptors as close as possible to the amplifier and BGM source.

Wiring on terminals  $\boxed{TB}$   $\boxed{P}$   $\boxed{G}$  (on YAW-R) to  $\boxed{I}$   $\boxed{P}$   $\boxed{-}$  (on PB-YKX)

Usually, single conductor of 0.5mm dia. (24 AWG) or more may be used. If PB-YKX unit is more than 5m (16'') away from YAW-R/RA unit, use of shielded wires is recommended, particularly on terminals  $\boxed{TB}$   $\boxed{G}$ .

Wiring on terminals  $\boxed{V}$   $\boxed{V}$   $\boxed{S}$   $\boxed{S}$  (on PB-YKX)

- ① Use either 70V or 100V constant voltage output terminals for amplifier output line and connect paging speakers in parallel.
- ② Keep speaker line at least 50 cm (20'') away from communication line and also from amplifier input line and BGM source output line.  
If speaker line runs closely with the above lines, use a shielded single pair wires.
- ③ The 2 output lines from terminals  $\boxed{V}$   $\boxed{V}$  for paging speakers and from  $\boxed{S}$   $\boxed{S}$  for talkback speakers must be run as separately as possible or shielded cable must be used.
- ④ The total load of talkback speakers must not exceed 50W on either 70V or 100V line.
- ⑤ On the talkback speaker line  $\boxed{S}$   $\boxed{S}$  on PB-YKX, only speakers from which talkback is required, should be connected. If all the speakers were connected, talkback sound quality would deteriorate due to surrounding noise, also amplifier would be put in a no-load condition on the talkback mode.  
It is, therefore, required that some speakers should be connected to paging speaker line of the amplifier directly, or that, if unavoidable, dummy resistors equivalent to 20 to 30% of the amplifier's rated load should be installed.

#### Other instructions

- ① It is recommended that [AUX] terminals be used for amplifier input. If [PHONO] terminals are used, the tone quality of both paging and BGM would deteriorate due to the RIAA equalizing circuits included, etc.

In case [PHONO] terminals must be used, make tone adjustment on YAW-R/YAW-RA paging adaptor, taking the above into account.

- ② It is suggested that YAW-R/YAW-RA paging adaptors should be installed near the center of the system, along with power supply PS-24M.

However, YAW-R/YAW-RA must be kept more than 20cm (8") away from PS-24M to avoid inductive noise.

- ③ Do not install YAW-R/YAW-RA paging adaptors in such places as exposed to;
- 1) high temperature (ex. direct sunlight, air conditioning heat, furnace, etc.)
  - 2) low temperature (ex. refrigerated warehouse).
  - 3) extremely high humidity
  - 4) water, oil, dust, chemicals, etc.

#### Amplifier power control line

- ① On YAW-R/YAW-RA paging adaptors, there are two dry make contacts for turning on paging amplifier only when paging is initiated.

- ② YAZ-90-3 station selects a YAW-R or YAW-RA adaptor, by pressing [⊗] and adaptor number [0] ~ [9], which turns paging amplifier power on.

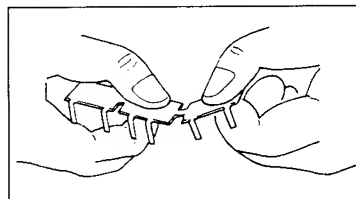
After the handset is replaced, paging amplifier turns to OFF position.

- ③ YAW-R contact capacity is AC 240V, 10A; DC 24V, 10A (loaded resistance)  
YAW-RA contact capacity is AC 25V, 10A (loaded resistance)
- ④ When controlling AC power line with the YAW-R, the amplifier's dash current must be taken into account. If it exceeds the rated contact capacity, control should be made via an additional power relay.
- ⑤ YAW-R's power control line remains unused when background music is included.
- ⑥ Aiphone's PG-B (or PG-A) amplifier is recommended. When another manufacturer's amplifier requiring longer set-up time is used, it may be that the pre-tone is cut off, if page button in handset is pressed right after [⊗] and number button are pressed.

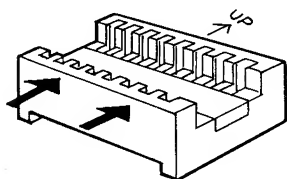
## SETTING ADAPTOR NUMBER

In YAZ-90-3 system, a total of 10 adaptors may be connected, either for paging or remote control of lights.

- \* Either number from [0] to [9] may be set freely on the socket provided for each adaptor.
- \* When system includes only one adaptor either for paging or remote control, it is not necessary to set number for the adaptor. In this case, the number for the paging adaptor is set for [0] automatically.
- \* Separate the plate desired. As shown in illustration, bend the plate upward. Attach the plate on the right side of the socket, leaving the left side without any plate.
- \* Do not use the same number for 2 or more adaptors.
- \* Alphabets A to F on plates should remain unused.

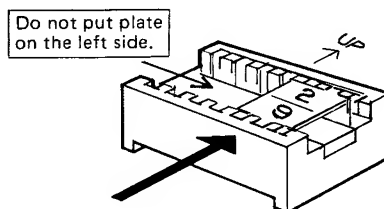


ex. Setting for number [0]

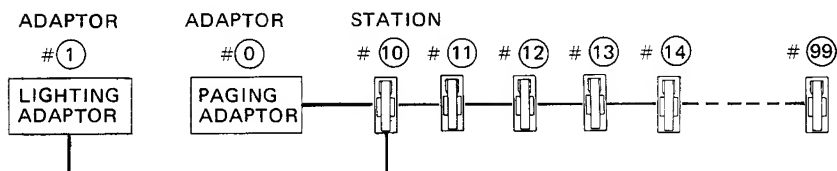


It is not necessary to put any plate on either side.

ex. Setting for number [2]



Put a plate with No. 2 up on the right side, while the left side remains empty.



## PAGING SPEAKERS IMPEDANCE MATCHING

- \* Decide the number of speakers so that the total power consumed for speakers would be equal to the output power of amplifier (but the total speaker input should not exceed 100W).

Impedance matching table

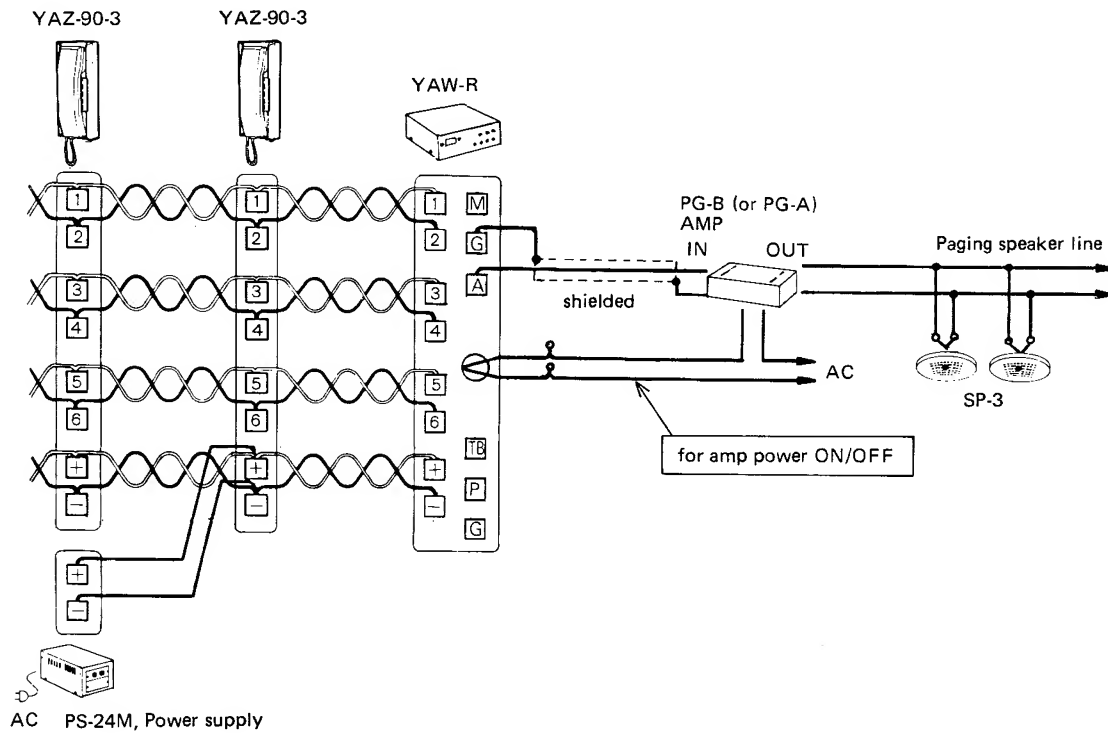
Model	Rated input	Impedance	Speaker Input		Terminals
			100V line	70V line	
SP-3	3W	10 K ohm	1W	0.5W	<span style="border: 1px solid black; padding: 0 2px;">0</span> – <span style="border: 1px solid black; padding: 0 2px;">3</span>
		5 K ohm	2W	1 W	<span style="border: 1px solid black; padding: 0 2px;">0</span> – <span style="border: 1px solid black; padding: 0 2px;">2</span>
		3.3K ohm	3W	1.5W	<span style="border: 1px solid black; padding: 0 2px;">0</span> – <span style="border: 1px solid black; padding: 0 2px;">1</span>

## ADJUSTING CONTROLS

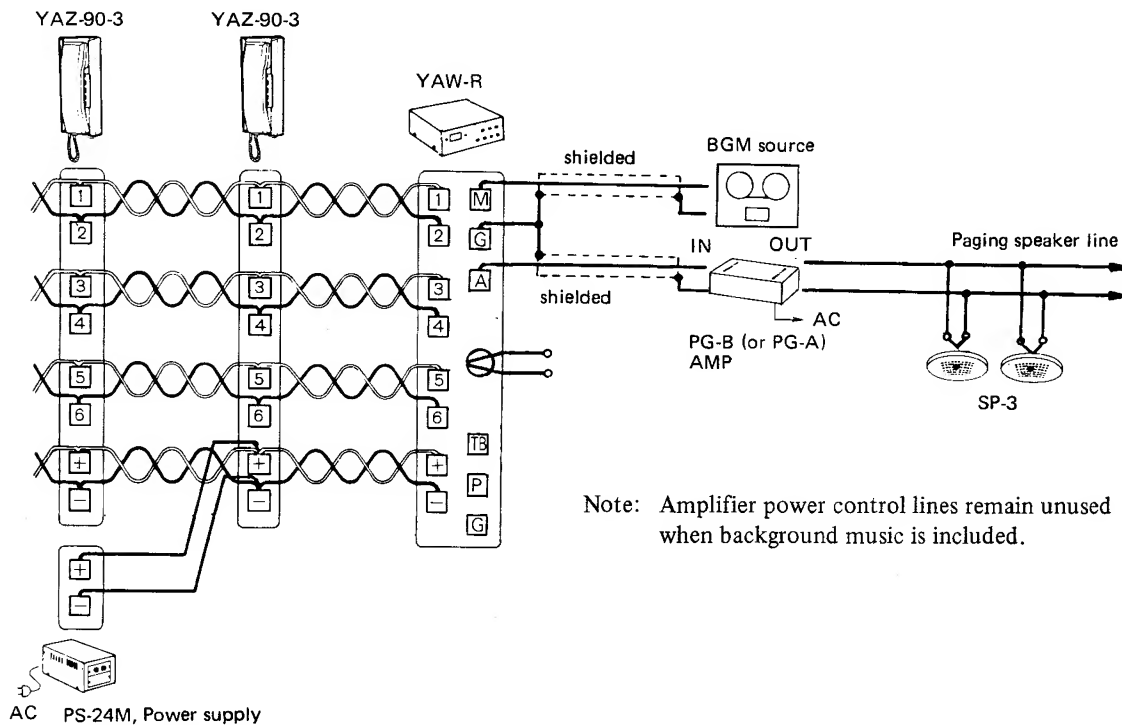
Upon completing all the wiring connections, proceed with the following steps before turning on all the equipment.

- (1) Set YAW-R/YAW-RA VOLUME, TREBLE, BASS controls (and of paging amplifier and BGM source, if included) at MIDPOINT.
- (2) Set PB-YKX VOLUME & NOISE controls at MIDPOINT.
- (3) Turn on power supply PS-24M of YAZ system, paging amplifier, BGM source.
- (4) Initiate paging or talkback operations (prior to BGM control adjustment).
- (5) Adjust paging VOLUME control on YAW-R/YAW-RA to achieve desired level. Fine tune paging TREBLE & BASS controls on YAW-R/YAW-RA.  
In places where a YAZ-90-3 phone is located near the paging speakers, feedback might take place, if the paging volume is too high.
- (6) Adjust YAW-R/YAW-RA background music VOLUME control to achieve desired background music level.  
Fine tune background music TREBLE & BASS, while listening to the background music (Adjustment of background music VOLUME, TREBLE & BASS controls can be made on BGM source, if included).
- (7) Adjust pre-tone volume.

## WIRING EXAMPLE # ① PAGING TO ONE ZONE, WITH YAW-R ADAPTOR

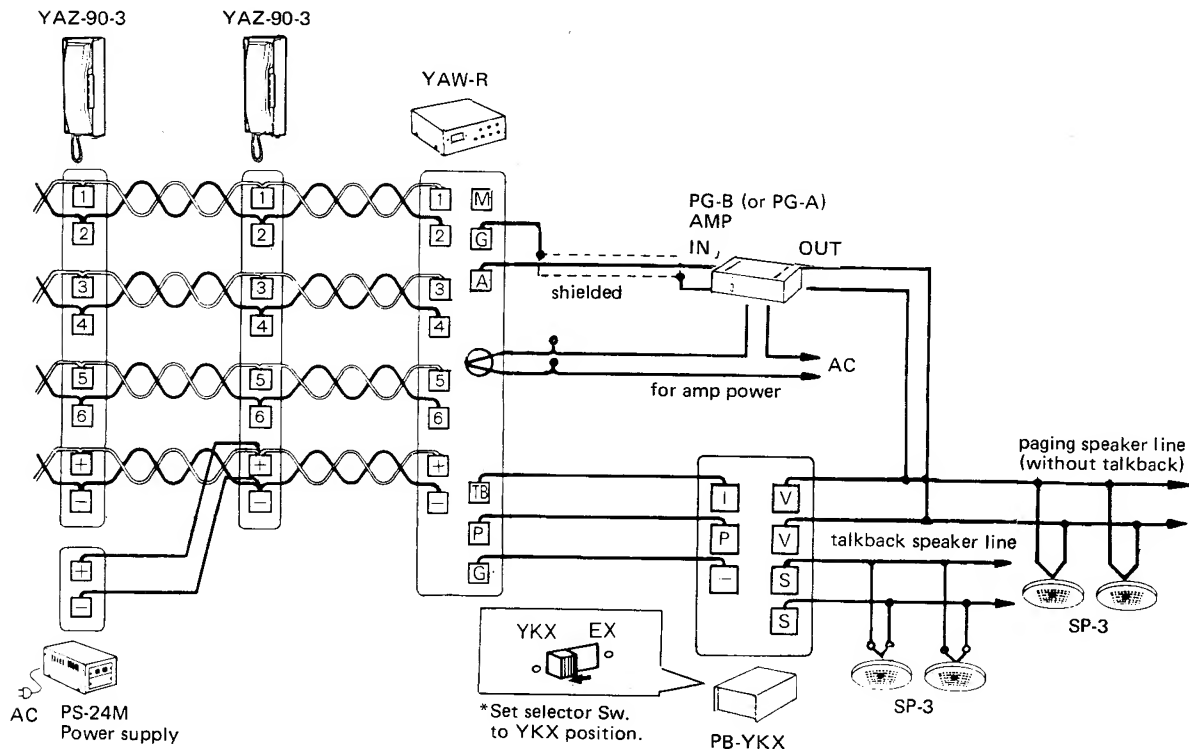


## WIRING EXAMPLE # ② PAGING TO ONE ZONE WITH BACKGROUND MUSIC, WITH YAW-R ADAPTOR



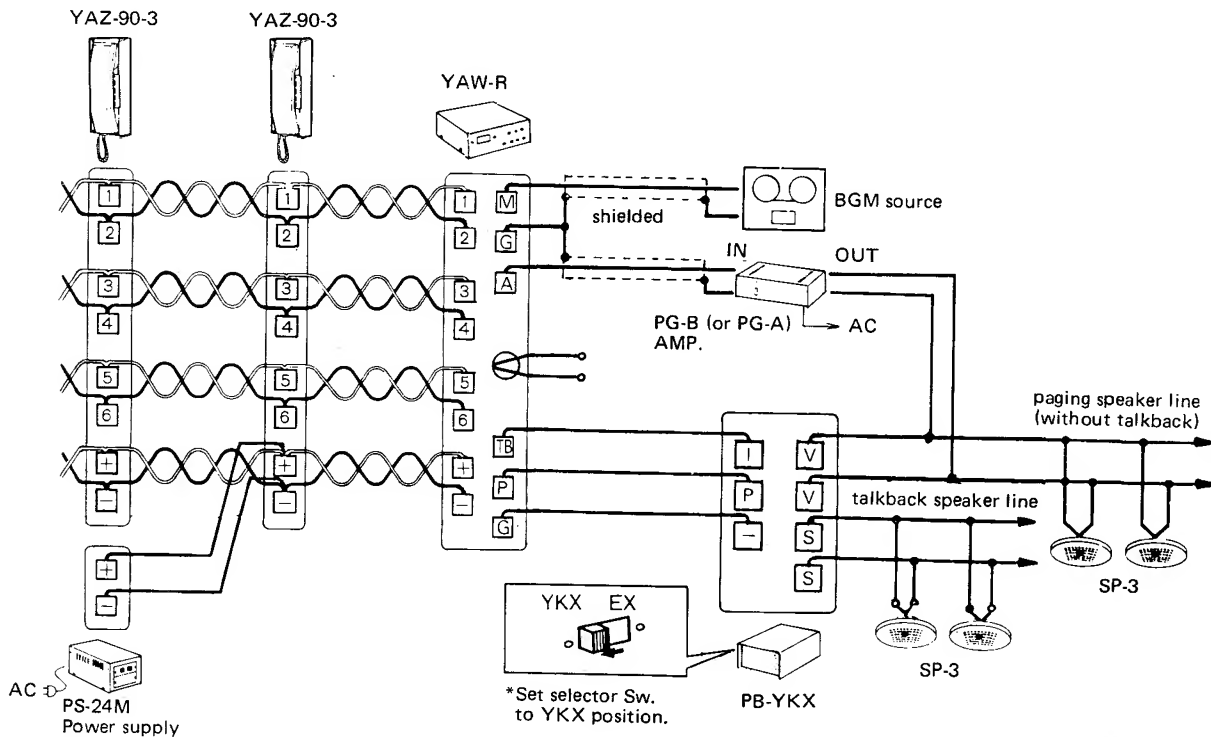


### WIRING EXAMPLE # ③ PAGING TO ONE ZONE WITH TALKBACK, USING YAW-R & PB-YKX ADAPTORS



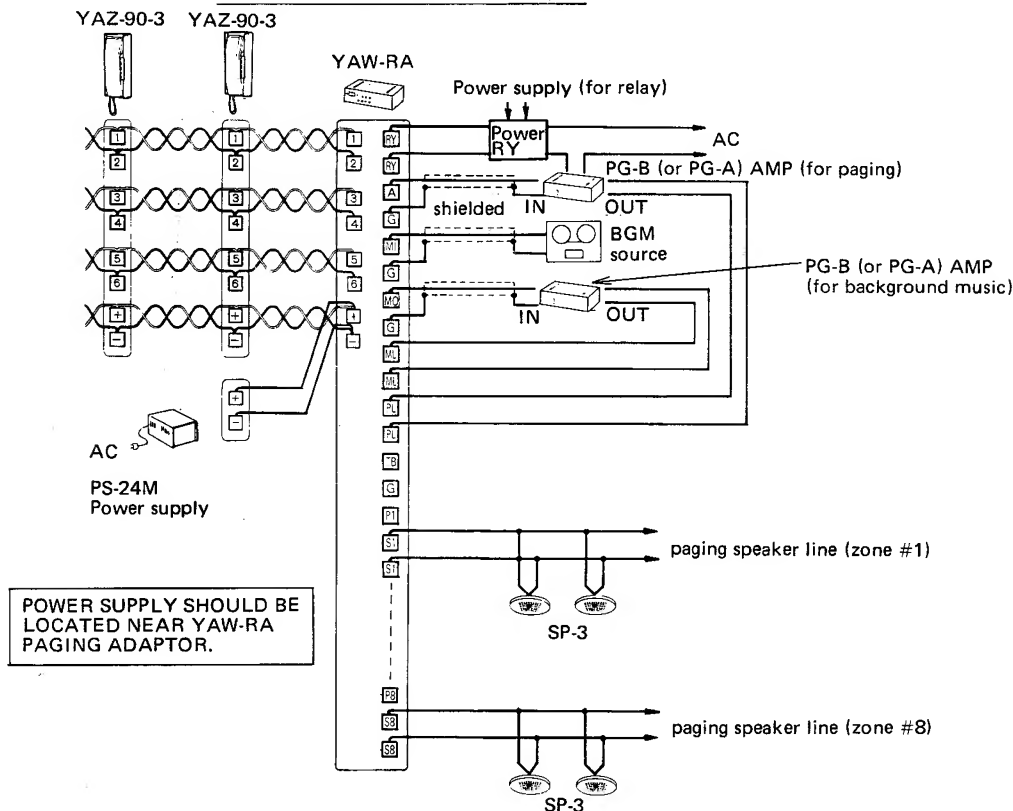
Note: Connect to terminals **S S** speakers from which talkback is required.

### WIRING EXAMPLE # ④ PAGING TO ONE ZONE WITH TALKBACK & BACKGROUND MUSIC, USING YAW-R & PB-YKX ADAPTORS

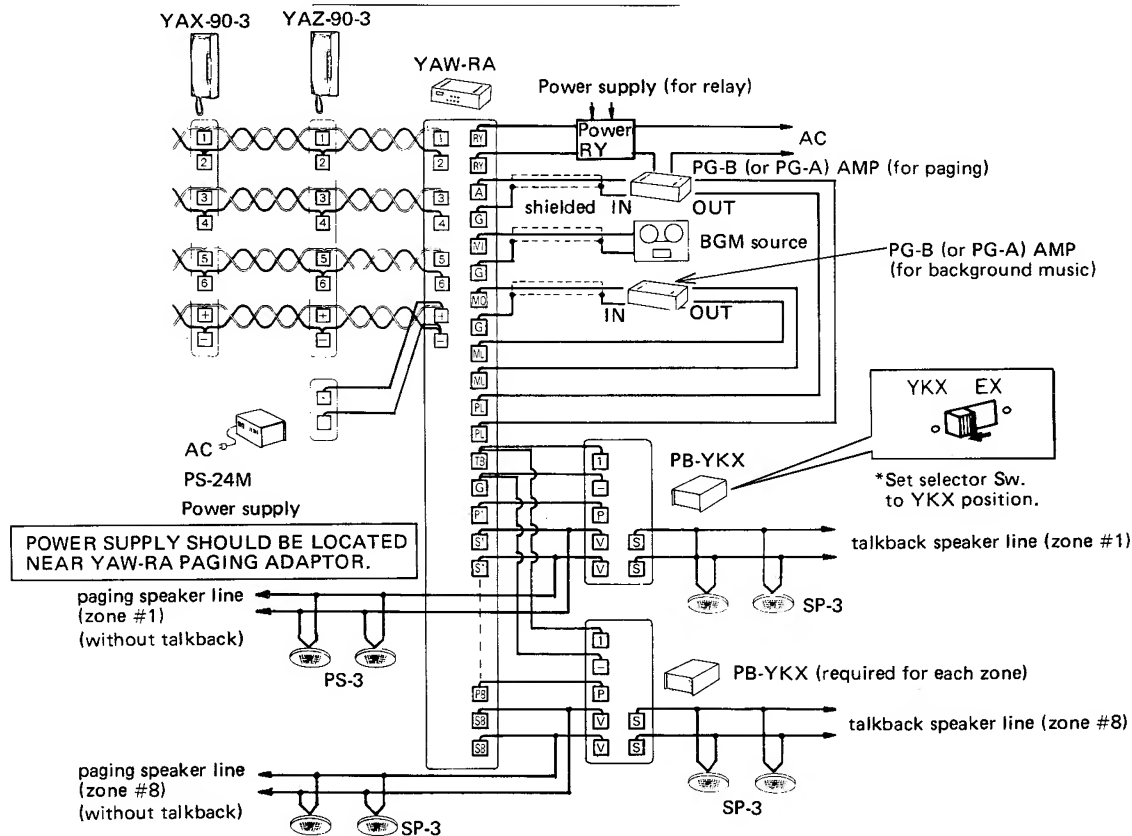


- Notes: 1. Amplifier power control lines remain unused when background music is included.  
2. Connect to terminals **S S** speakers from which talkback is required.

# WIRING EXAMPLE # ⑤ PAGING TO 8 ZONES WITH BACKGROUND MUSIC, USING YAW-RA ADAPTOR



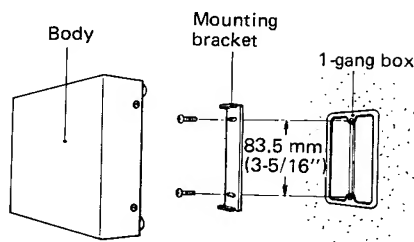
# WIRING EXAMPLE # ⑥ PAGING TO 8 ZONES WITH TALKBACK & BACKGROUND MUSIC, USING YAW-RA ADAPTOR



Note: Connect PB-YKX talkback adaptor for each zone where talkback is required.

## MOUNTING INSTALLATION

[YAW-R]

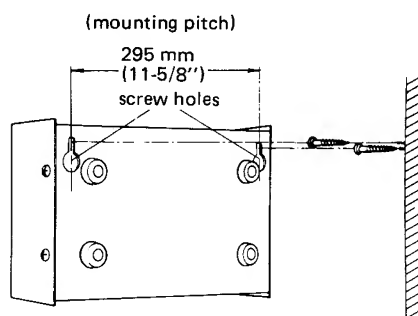


Attach the mounting bracket to wall or 1-gang box. Insert the prongs of the bracket into the holes of the YAW-R chassis and pull the body downward until properly locked.

Select a location where the unit is not exposed in order to avoid injury or tampering.

The YAW-R unit may be mounted on the shelf or rack.

[YAW-RA]



Attach the wood screws provided to wall.

Mount the YAW-RA unit upon the screws protruding from the wall.

Select a location where the unit is not exposed in order to avoid injury or tampering.

The YAW-RA unit may be mounted on the shelf or rack.

## PAGING OPERATIONS

In YAZ-90-3 system with YAW-R 1-zone paging adaptor;

At YAZ-90-3 station;

- (1) Pick up handset.
- (2) Press button.
- (3) Press a dial button ( ~ ) assigned for YAW-R adaptor.
- (4) Page while depressing and holding down page button in handset.  
Pre-tone sounds at the paging speakers.  
Release page button in handset to listen to the reply, when talkback is included
- (5) After paging, hang up handset.

In YAZ-90-3 system with YAW-RA 8-zone paging adaptor;

At YAZ-90-3 station;

- (1) Pick up handset.
- (2) Press button.
- (3) Press a dial button ( ~ ) assigned for YAW-RA.
- (4) For all page;  
Press button.  
For zone page;  
Press a dial button ( ~ ) of the zone desired.  
For multiple zone page;  
Press the dial buttons ( ~ ) in succession of the zones desired.  
If wrong zone numbers were selected, press button. All the previously selected zones are cancelled.
- (5) Page while depressing and holding down page button in handset.  
\*Pre-tone sounds at the speakers of the selected zones.  
Release page button in handset to listen to the reply, when talkback is included.  
\*Talkback is not available in all page mode.
- (6) After paging, hang up handset.

\* \* \*

We at AIPHONE are proud of our products. Our designers and engineers strive to bring you the finest in communication equipment. Each item has been carefully tested and inspected before leaving our factory. Properly installed and used, your Aiphone intercom system should give years of trouble-free service.

We are pleased to offer the following warranty:

#### WARRANTY

Aiphone warrants its products to be free from defects of material and workmanship under normal use and service for a period of one year after delivery to the ultimate user and will repair free of charge or replace at no charge, should it become defective upon which examination shall disclose to be defective and under warranty. Aiphone reserves unto itself the sole right to make the final decision whether there is a defect in materials and/or workmanship; and whether or not the product is within the warranty.

This warranty shall not apply to any Aiphone product which has been subject to misuse, neglect, accident, or to use in violation of instructions furnished, nor extended to units which have been repaired or altered outside of the factory.

This warranty does not cover batteries or damage caused by batteries used in connection with the product.

This warranty covers bench repairs only, and any repairs must be made at the shop or place designated in writing by Aiphone. Aiphone will not be responsible for any costs incurred involving on site service calls.

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Aiphone Corporation, Bellevue, Washington  
YAW-R/RA-I-0784 (A)

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